CLAIMS

1. A method of fabrication of a cavity (11, 21, 51) in a substrate (10, 30, 501) for a component for electromagnetic waves, the method comprising the step of:
   - providing said cavity by removal of material from said substrate through immersing the substrate in a liquid bath of a chemical etchant, so that the produced cavity has a top and a bottom side and sidewalls, and said cavity at one of said top and/or bottom sides exhibits an opening with at least four sides having at least two different adjacent angles.

2. The method of claim 1, wherein said component further comprises a conductive layer arranged as a ground plane (12) covering said substrate, said ground plane being provided with at least one coupling slot (16, 17) and at least one conductor (13, 14), said ground plane being connected to a component element (11), which is inserted into said cavity (21) in said substrate.

3. Method of claim 1,
characterised in
that said substrate is made of [110] silicon.

4. Method according to one of claims 1 to 3,
characterised in
that said component is one of a filter, diplexer, resonator or matching network.

5. Method according to one of claims 1 to 4,
characterised in
that said substrate is etched from both sides.

6. A component for electromagnetic waves, said component comprising a substrate (10, 30, 501) provided with a cavity (11, 21, 51) being produced by removal of material from said substrate by immersing the substrate in a liquid bath of a chemical etchant, said cavity having a top and a bottom side and sidewalls,
characterised in
that said cavity at one of said top and/or bottom sides exhibits an opening having at least four sides and having at least two different adjacent angles.

7. The component of claim 6,

characterised in
that said component further comprises a conductive layer arranged as a ground plane (12) covering said substrate, said ground plane being provided with at least one coupling slot (16, 17) and at least one conductor (13, 14), said ground plane being connected to a component element (11), which is inserted into said cavity (21) in said substrate.

8. The component of claim 6 or 7,
characterised in
that said substrate is made of [110] silicon.

9. The component according to one of claims 6 to 8,
characterised in
that said component is one of a filter, diplexer, resonators or matching networks.

10. The component of claim 7,
characterised in
that said conductive plane is made of a metallic layer.

11. The component of claim 6,
characterised in
that said cavity is arranged in a resonator arrangement (50) with coplanar waveguide (CPW) couplings, comprising said substrate (501) with micromachined through cavity (51) with electroplated surface (59).

12. The component according to one of claims 6 to 11,
characterised in
that said cavity is made through preferential etching from the both sides of the substrate, having said sidewalls perpendicular to the surfaces of the cavity.

13. The component of claim 6,
characterised in
that said substrate is enclosed within a housing (502) of dielectric material.

14. The component of claim 10,
characterised in
that microstrips (53, 54) are arranged on a cap (52).

15. The component according to one of claims 7 to 15,
characterised in
that said cavity has a length, $n\lambda$, where $n = 1, 2,...$, wherein λ is the wavelength.

16. The component of claim 11,
characterised in
that the components is provided with low CPW or Coplanar Strip (CPS) waveguide input and output-coupling networks.

17. The component of claim 14,
characterised in
that the cavity is rhombus shaped while end sections of said strips are angularly arranged relative cavity edges.

18. The component of claim 14,
characterised in
that end sections of the strips follow cavity edges, i.e. they have same angle as the cavity edges.

19. A method of fabricating a component according to claim 8, comprising the steps of:
- providing a conductive plane,
- arranging the conductive plane with coupling openings through milling,
- providing a microwave element on a first surface of said conductive plane,
- providing a dielectric layer on a second surface of said conductive plane,
- arranging microwave conductors on the dielectric layer,
- providing a silicon wafer with [110] orientation
- exposing selected areas on said silicon plate to wet etching until cavities of desired depth are produced,
- covering (electroplating) the etched surfaces by a conductor, and
- attaching said conductive plate to said silicon plate, e.g. by means of anodic bonding.